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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/432,022	10/29/1999	JOHN E. DONOHUE	500.723US1	9521

44279 7590 03/29/2005

PULSE-LINK, INC.
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EXAMINER	
KUMAR, PANKAJ	

ART UNIT	PAPER NUMBER
2631	

DATE MAILED: 03/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/432,022	DONOHUE, JOHN E.	
	Examiner	Art Unit	
	Pankaj Kumar	2631	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 December 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-31* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *8-22* is/are allowed.

6)☒ Claim(s) *1-3,7,23,30 and 31* is/are rejected.

7)☒ Claim(s) *4-6, 24-29* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. In view of the appeal brief filed, PROSECUTION IS HEREBY REOPENED as set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,

(2) request reinstatement of the appeal.

If reinstatement of the appeal is requested, such request must be accompanied by a supplemental appeal brief, but no new amendments, affidavits (37 CFR 1.130, 1.131 or 1.132) or other evidence are permitted. See 37 CFR 1.193(b)(2).

2. This responses takes uses the same references but takes a different position.

3. Applicant's argument about Momtaz col. 4 lines 27-32 is not persuasive since Momtaz is discussing prior art systems (Momtaz same paragraph col. 4 line 17) and these prior art systems have inordinate times to reestablish proper operation (Momtaz col. 4 lines 17-18) because they change the frequency (Momtaz col. 4 lines 27-32). Momtaz is correcting the this flaw of the prior systems by keeping the same frequency (Momtaz line 39: locked to a known frequency; line 18: looses lock; line 55-56: reacquiring the lock before getting next data)

Response to Amendment

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1, 2, 3, 7, 23, 30, 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maddy USPN 5,334,952 in view of Walley USPN 6,606,364 in view of Momtaz USPN 5,950,115.

6. As per claim l: A phase locked loop circuit, comprising: a differential phase detector (Momtaz fig. 4: 60) (Maddy fig. 2: 203; paragraph 6: "Phase detector 203 generates a signal on line 221 that is proportional to the phase difference between the divided reference signal on line 219 and the divided output signal on line 226. Preferably the output signal from phase detector 203 is pulse width modulated (PWM) meaning that the phase difference is indicated by a pulse width of a pulsed output on line 221. Alternatively, phase detector 203 can output an analog signal.") that receives an input signal (Momtaz fig. 4: 26) (Maddy fig. 2: 219) and a feedback signal (Momtaz fig. 4: output of 62 into 60) (Maddy fig. 2: 226) and produces a differential output signal (Momtaz fig. 4: outputs of 60) (Maddy fig. 2: 221); an electronic selector circuit (Maddy fig. 2: 217) having: at least one first input coupled to the differential output of the phase detector (Maddy fig. 2: 221); and a second input (Maddy fig. 2: 231) that is responsive to a detected state of the input signal (Maddy fig. 3: 231 is responsive to the detected state of 219 via

221 and other signals); a loop filter circuit (Maddy fig. 2: 206) having an operational amplifier, the operational amplifier, having at least one amplifier output (not in Maddy but it is in Walley and it would have been obvious to have in Maddy as explained below), wherein the electronic selector circuit (Maddy fig. 2: 217) provides the differential output signal of the phase detector to the amplifier input (Maddy: output of phase detector is differential and it is eventually going to the amplifier inside the loop filter via other components); a voltage controlled oscillator (Maddy fig . 2: 209) coupled to an output of the operational amplifier (Maddy fig. 2: 209 coupled to output of loop filter which has opamp via other components) and providing an output frequency for the phased locked loop circuit (Maddy fig. 2: 224); and wherein the electronic selector circuit (Maddy fig. 2: 217) is operable to control the amplifier input to hold the output frequency of the voltage controlled oscillator at a substantially constant frequency when the input signal to the phase detector is interrupted (not in Maddy but would have been obvious over Momtaz as explained below).

7. Maddy does not teach an operational amplifier for a loop filter.

8. Walley teaches an operational amplifier for a loop filter (Walley col. 1 lines 42-44: "loop filter 18 (customarily implemented as an operational amplifier -based circuit)").

9. Thus, it would have been obvious, to one of ordinary skill in the art, at time the invention was made, to arrive at the operational amplifier for a loop filter as recited by the instant claims, because the combined teaching of Maddy with Walley suggest operational amplifier for a loop filter as indicated by the instant claims. Furthermore, one of ordinary skill in the art, would have been motivated to combine the teachings of Maddy with Walley because Maddy suggests what has customarily been done in prior art (something broad) in general and Walley suggests the

beneficial use of an operational amplifier for a loop filter such as it being a customary implementation (Walley col. 1 lines 42-44: "loop filter 18 (customarily implemented as an operational amplifier -based circuit)") and one would want to do what has worked well in the past in the analogous art of loop filter.

10. Maddy does not teach holding the output frequency of the voltage controlled oscillator at a substantially constant frequency when the input signal to the phase detector is interrupted.

11. Momtaz teaches holding the output frequency of the voltage controlled oscillator at a substantially constant frequency (Momtaz line 39: locked to a known frequency; line 18: looses lock; col. 10 line 55-56: reacquiring the lock before getting next data; keeping constant frequency once interrupt signal is detected can be read on the frequency of the prior signal before interrupt) when the input signal to the phase detector is interrupted (Momtaz col. 10 line 18: looses lock; lines 42-51: frequency drift large enough or data link is interrupted) (Momtaz col. 10 lines 16-65)

12. Thus, it would have been obvious, to one of ordinary skill in the art, at time the invention was made, to arrive at the holding the output frequency of the voltage controlled oscillator at a substantially constant frequency when the input signal to the phase detector is interrupted as recited by the instant claims, because the combined teaching of Maddy with Momtaz suggest holding the output frequency of the voltage controlled oscillator at a substantially constant frequency when the input signal to the phase detector is interrupted as recited by the instant claims. Furthermore, one of ordinary skill in the art, would have been motivated to combine the teachings of Maddy with Momtaz because Maddy suggests correcting errors (Maddy fig. 3: error canceling) (something broad) in general and Momtaz suggests the beneficial use of if the error is

such that there is an interruption (Momtaz col. 10 line 18: looses lock; lines 42-51: frequency drift large enough or data link is interrupted), then Momtaz will get out of the interruption and reacquire the lock (Momtaz line 39: locked to a known frequency; line 18: looses lock; col. 10 line 55-56: reacquiring the lock before getting next data; keeping constant frequency once interrupt signal is detected can be read on the frequency of the prior signal before interrupt) in the analogous art of phase lock(ed) loop.

13. As per claim 2: The circuit of claim 1, wherein the electronic selector circuit de-couples the amplifier input from the differential output (Maddy fig. 2: switch 217 decouples the 221 input via other components into 206 which would obviously have the opamp and couples 231 input via other components into 206) and holds the output frequency under an external command when the input signal to the phase detector is interrupted (Momtaz col. 10: change from one control loop to another control loop).

14. As per claim 3: The circuit of claim 2 wherein the electronic selector circuit holds a current signal input to the operational amplifier (Momtaz line 39: locked to a known frequency; line 18: looses lock; col. 10 line 55-56: reacquiring the lock before getting next data; keeping constant frequency once interrupt signal is detected can be read on the frequency of the prior signal before interrupt) when a reference signal to the phase detector is interrupted (Momtaz col. 10 line 18: looses lock; lines 42-51: frequency drift large enough or data link is interrupted) (Momtaz col. 10 lines 16-65).

15. As per claim 7: The circuit of claim 2, wherein the electronic selector circuit re-couples the amplifier input to the differential output of the phase detector (Maddy fig. 2: switch 217 recouples the 221 input via other components into 206, which would obviously have the opamp, and decouples 231 input via other components into 206) when the input signal is restored (Momtaz col. 10).

16. As per claim 23: A method for preventing data errors in a communication system, comprising: coupling input data (Maddy fig. 2: 236, 201) to a phase locked loop circuit, wherein the phase locked loop includes: a differential phase detector (Momtaz fig. 4: 60) (Maddy fig. 2: 203; paragraph 6: "Phase detector 203 generates a signal on line 221 that is proportional to the phase difference between the divided reference signal on line 219 and the divided output signal on line 226. Preferably the output signal from phase detector 203 is pulse width modulated (PWM) meaning that the phase difference is indicated by a pulse width of a pulsed output on line 221. Alternatively, phase detector 203 can output an analog signal.") that receives an input signal (Momtaz fig. 4: 26) (Maddy fig. 2: 219) and a feedback signal (Momtaz fig. 4: output of 62 into 60) (Maddy fig. 2: 226) and produces a differential output signal (Momtaz fig. 4: outputs of 60) (Maddy fig. 2: 221); an electronic selector circuit (Maddy fig. 2: 217) having: at least one first input coupled to the differential output of the phase detector (Maddy fig. 2: 221); and a second input (Maddy fig. 2: 231) that is responsive to a detected state of the input signal (Maddy fig. 3: 231 is responsive to the detected state of 219 via 221 and other signals); a loop filter circuit (Maddy fig. 2: 206) having an operational amplifier, the operational amplifier, having at least one amplifier input (not in Maddy but it is in Walley and it would have been obvious to

have in Maddy as explained below), wherein the electronic selector circuit (Maddy fig. 2: 217) provides the differential output signal of the phase detector to the amplifier input (Maddy: output of phase detector is differential and it is eventually going to the amplifier inside the loop filter via other components); a voltage controlled oscillator (Maddy fig . 2: 209) coupled to an output of the operational amplifier (Maddy fig. 2: 209 coupled to output of loop filter which has opamp via other components) and providing an output frequency for the phased locked loop circuit (Maddy fig. 2: 224); using the electronic selector circuit (Maddy fig. 2: 217) to control the amplifier input to hold the output frequency of the voltage controlled oscillator at a substantially constant frequency when the input signal to the phase detector is interrupted (not in Maddy but would have been obvious over Momtaz as explained below); and using the electronic selector circuit (Maddy fig. 2: 217) to release control of the amplifier input to follow the differential output (Maddy fig. 2: 217 switches so that the amplifier, which would obviously be inside the loop filter, input is from 231 and not from 221 since 221 follows the differential output as 221 is generated out of 203 has inputs of 219 and a version of the feedback signal 226) when the input signal to the phase detector is restored (not in Maddy. Momtaz teaches this in col. 10).

17. Maddy does not teach an operational amplifier for a loop filter.

18. Walley teaches an operational amplifier for a loop filter (Walley col. 1 lines 42-44: "loop filter 18 (customarily implemented as an operational amplifier -based circuit)").

19. Thus, it would have been obvious, to one of ordinary skill in the art, at time the invention was made, to arrive at the operational amplifier for a loop filter as recited by the instant claims, because the combined teaching of Maddy with Walley suggest operational amplifier for a loop filter as indicated by the instant claims. Furthermore, one of ordinary skill in the art, would have

been motivated to combine the teachings of Maddy with Walley because Maddy suggests what has customarily been done in prior art (something broad) in general and Walley suggests the beneficial use of an operational amplifier for a loop filter such as it being a customary implementation (Walley col. 1 lines 42-44: "loop filter 18 (customarily implemented as an operational amplifier -based circuit)") and one would want to do what has worked well in the past in the analogous art of loop filter.

20. Maddy does not teach holding the output frequency of the voltage controlled oscillator at a substantially constant frequency when the input signal to the phase detector is interrupted.

21. Momtaz teaches holding the output frequency of the voltage controlled oscillator at a substantially constant frequency (Momtaz line 39: locked to a known frequency; line 18: looses lock; col. 10 line 55-56: reacquiring the lock before getting next data; keeping constant frequency once interrupt signal is detected can be read on the frequency of the prior signal before interrupt) when the input signal to the phase detector is interrupted (Momtaz col. 10 line 18: looses lock; lines 42-51: frequency drift large enough or data link is interrupted) (Momtaz col. 10 lines 16-65)

22. Thus, it would have been obvious, to one of ordinary skill in the art, at time the invention was made, to arrive at the holding the output frequency of the voltage controlled oscillator at a substantially constant frequency when the input signal to the phase detector is interrupted as recited by the instant claims, because the combined teaching of Maddy with Momtaz suggest holding the output frequency of the voltage controlled oscillator at a substantially constant frequency when the input signal to the phase detector is interrupted as recited by the instant claims. Furthermore, one of ordinary skill in the art, would have been motivated to combine the

teachings of Maddy with Momtaz because Maddy suggests correcting errors (Maddy fig. 3: error canceling) (something broad) in general and Momtaz suggests the beneficial use of if the error is such that there is an interruption (Momtaz col. 10 line 18: looses lock; lines 42-51: frequency drift large enough or data link is interrupted), then Momtaz will get out of the interruption and reacquire the lock (Momtaz line 39: locked to a known frequency; line 18: looses lock; col. 10 line 55-56: reacquiring the lock before getting next data; keeping constant frequency once interrupt signal is detected can be read on the frequency of the prior signal before interrupt) in the analogous art of phase lock(ed) loop.

23. As per claim 30: The method of claim 23, wherein the method further includes using the output frequency of the voltage controlled oscillator (Maddy fig. 2: 224) for providing the feedback signal to the differential phase detector (Maddy fig. 226 via 211).

24. As per claim 31: The method of claim 23, wherein the method further includes using the output frequency of the voltage controlled oscillator. What the combination does not teach is wherein the method further includes using the output frequency of the voltage controlled oscillator as an output frequency for a system clock coupled to a number of system modules connected to the communication system. It would have been obvious to one skilled in the art at the time of the invention to modify the combination to teach system clock and communication system since the prior art such as Momtaz suggest clock connected to system modules (Momtaz fig. 4: REFCLK into 64, 74) and communication system (Momtaz fig. 2: TX, RX) for the benefit of having an efficient communication system in the analogous art of PLL. . Also, it has been

held that the selection of known material (in this case, system clock or communication system) based on its suitability for the intended use for prior art parts does not make the claimed invention patentable over that prior art (In re Leshin, 125 USPQ 416). Also, applicant appears compare the method or manner of intended use of the apparatus rather to delineating claimed structure not shown or made obvious by the prior art.

Allowable Subject Matter

25. Claims 4-6, 24-29 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

26. Claims 15 to 22 are allowed.

27. The following is a statement of reasons for the indication of allowable subject matter: The art of record does not suggest the respective claim combinations together and nor would the respective claim combinations be obvious with:

28. As per claim 15: a synchronization source, coupled to the number of traffic cards, having a selector coupled to an external synchronization source and a controller, wherein the selector provides an input signal to a phased locked loop circuit, wherein the phase locked loop circuit is coupled to the controller.

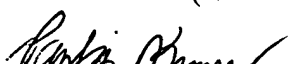
29. Claims 16 to 22 depend on claim 15.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Pankaj Kumar whose telephone number is (571) 272-3011. The examiner can normally be reached on Mon, Tues, Thurs and Fri after 8AM to after 6:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad H. Ghayour can be reached on (571) 272-3021. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Pankaj Kumar
Patent Examiner
Art Unit 2631

PK